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IN REPLY
REFER TO: Joint Interoperability Test Command (JTE) **13 May 09**

MEMORANDUM FOR DISTRIBUTION

SUBJECT: Extension of the Special Interoperability Test Certification of Nortel Communication Server (CS) 2100 Digital Switching System with Software Release Succession Enterprise (SE)08 and specified Software Patch Groups

References: (a) DoD Directive 4630.5, "Interoperability and Supportability of Information Technology (IT) and National Security Systems (NSS)," 5 May 2004
(b) CJCSI 6212.01D, "Interoperability and Supportability of Information Technology and National Security Systems," 8 March 2006
(c) through (h), see Enclosure

1. References (a) and (b) establish the Defense Information Systems Agency, Joint Interoperability Test Command (JITC), as the responsible organization for interoperability test certification.

2. The Nortel CS 2100 Digital Switching System with Software Release SE08 and specified Software Patch Groups is hereinafter referred to as the System Under Test (SUT). The SUT SE08 software load is a hybrid solution that includes both Voice over Internet Protocol and Time Division Multiplexing interfaces. The SUT meets the critical interoperability requirements and is certified as interoperable for joint use within the Defense Switched Network (DSN). The SUT was tested and met the critical interoperability requirements for the following DSN switch types: Multifunction Switch (MFS), End Office (EO), Small End Office (SMEO), Private Branch Exchange (PBX) 1, PBX 2, and Deployable Voice Exchange (DVX). The MFS and EO European Integrated Services Digital Network (ISDN) Primary Rate Interface (PRI) requirements for Europe are met by the SUT with the DSN Option 11C switching system with Software Release 4.5w and specified product enhancement packages. In this configuration, the DSN Option 11C is a tandem switch and is not authorized nor approved to support line side subscribers. The SUT meets the SMEO, PBX 1, PBX 2, and DVX requirements for Europe without the DSN Option 11C. The SUT offers an internal Automated Call Distributor (ACD) capability; however this capability does not meet the Multi-Level Precedence and Preemption (MLPP) interaction requirements in accordance with the GSCR. Furthermore, the MLPP interaction requirement is also not met with an external ACD system. Therefore, the SUT ACD capability is not authorized nor approved for use within the DSN with either an internal or external ACD. The SUT was tested and is certified with the following optional peripherals: Intelligent Peripheral Equipment Column (IPEC), Spectrum Peripheral Module (SPM), Media Gateway 9000 (MG9K), and the MG9K with Enhanced ISDN Line Concentration Module (LCME). The SUT is certified with or without any combination of these optional peripherals.

The SUT is certified to support DSN assured services over Internet Protocol with any Assured Services Voice Application Local Area Network (ASVALAN) on the Unified Capabilities (UC) Approved Products List (APL). The SUT is also certified for joint use with any Voice Application Local Area Network (VALAN) on the UC APL. However, since VALANs do not support the Assured Services Requirements detailed in reference (c), Command and Control (C2) users and Special C2 users are not authorized to be served by the SUT connected to a VALAN. The identified test discrepancies shown in the SUT Interoperability Summary that remained open after software patches were applied and regression testing was completed have a minor operational impact. The Remote Switching Unit (RSU) was tested but did not meet the critical interoperability requirements and is therefore not authorized nor approved for use in the DSN. This certification expires upon changes that affect interoperability, but no later than three years from the date of the original memorandum (29 March 2007).

3. The extension of this certification is based upon a desktop review and Defense Information Assurance (IA)/Security Accreditation Working Group (DSAWG) accreditation. The original certification is based on interoperability testing conducted by JITC and a review of the vendor's Letters of Compliance (LoC). Certification testing of the DSN Option 11C was completed on 18 December 2006 and documented in reference (d). Certification testing of the CS 2100 was conducted at JITC's Global Information Grid Network Test Facility at Fort Huachuca, Arizona from 15 August 2005 through 27 October 2006. Regression testing was conducted from 8 January through 12 February 2007. Review of the vendor's LoC was completed on 30 October 2006. Analysis of system data was completed on 12 March 2007. Additional testing was conducted with the DSN Option 11C as the vendor's proposed solution to satisfy the required MFS and EO European ISDN PRI interface for deployment in Europe from 21 May through 1 June 2007 and documented in reference (e). A desktop review was requested to include the following additional Spectrum Peripheral Module (SPM) components: ALU09S5E, PKA25S5E, IOS49S5E. The desktop review request was approved on 9 March 2009. DSAWG accreditation was granted on 5 May 2009.

4. The SUT interoperability test summary is listed in Table 1. The MFS Capability Requirements (CRs) and Feature Requirements (FRs) are listed in Table 2. This interoperability test summary is based on the SUT's ability to meet:

a. The following network interfaces as specified in reference (c): DSN, Defense Red Switch Network Gateway, Tactical Network Gateway, and Public Switched Telecommunications Network.

b. Interface and signaling requirements for trunk, line, and network management interfaces, and interoperability CRs and FRs derived from reference (f).

c. The overall system interoperability performance derived from test procedures listed in reference (g).

d. Review of the LoC submitted by Nortel.

e. Internet Protocol version 6 requirements specified in reference (f), paragraph 1.7, Table 1-3, by 30 June 2008 in accordance with reference (h) verified through vendor submission of LoC.

Table 1. SUT Interoperability Summary

DSN Trunk Interfaces			
Interface & Signaling	**Critical**	**Status**	**Remarks**
T1 CAS (DTMF, MFR1, DP)	Yes	Certified	Met all CRs and FRs with the following exceptions: The SUT does not support the WWNDP in accordance with the GSCR.[1] The SUT does not retry direct route during failed wink condition or glare condition.[2]
E1 CAS (DTMF, MFR1, DP)	Yes (Europe only)	Certified	Met all CRs and FRs with the following exceptions: The SUT does not support the WWNDP in accordance with the GSCR.[1] The SUT does not retry direct route during failed wink condition or glare condition.[2]
E1 CAS (DTMF, DP)	Yes (Europe only)	Certified	Met all CRs and FRs with the following exceptions: The SUT does not support the WWNDP in accordance with the GSCR.[1] The SUT does not retry direct route during failed wink condition or glare condition.[2]
T1 ISDN PRI NI 1/2 (ANSI T1.619a)	Yes	Certified	Met all CRs and FRs with the following exception: The SUT does not support the WWNDP in accordance with the GSCR.[1]
E1 ISDN PRI (ITU-T Q.955.3)	Yes (Europe only)	Certified	Met all CRs and FRs with the following minor exceptions: The SUT does not support the WWNDP in accordance with the GSCR.[1] The MFS and EO European ISDN PRI requirements for Europe are met by the SUT with the DSN Option 11C switching system with Software Release 4.5w and specified product enhancement packages listed in reference (e).
T1 SS7 (ANSI T1.619a)	Yes	Certified	Met all CRs and FRs with the following exception: The SUT does not support the WWNDP in accordance with the GSCR.[1]
E1 SS7 (ITU-T Q.735.3)	Yes (Europe only)	Certified	Met all CRs and FRs with the following exception: The SUT does not support the WWNDP in accordance with the GSCR.[1]
DSN Line Interfaces			
Interface & Signaling	**Critical**	**Status**	**Remarks**
2-Wire Analog (GR-506-CORE)	Yes	Certified	Met all CRs and FRs with the following minor exceptions: The SUT does not provide the correct precedence ring back cadence on an analog phone in accordance with the GSCR.[4] Improper MLPP interaction when calls are placed to a MLHG DN.[5]
ISDN BRI S/T and U Interface ITU-T Q.931	Yes	Certified	Met all CRs and FRs with the following minor exceptions: Improper MLPP interaction when calls are placed to a MLHG DN.[5] The SUT does not support MLPP interaction with MADN.[6] A member of an EKTS cannot be assigned as a member of an MLHG.[7]
2-Wire Digital and Analog (Proprietary)	No	Certified	Met all CRs and FRs with the following minor exceptions: Improper MLPP interaction when calls are placed to a MLHG DN.[5] The SUT does not support MLPP interaction with the MADN.[6]
VoIP	No	Certified	Met all CRs and FRs with the following minor exception: Improper MLPP interaction when calls are placed to a MLHG DN.[5]
Line-Side T1 CAS DTMF (Ground-Start)	No	Certified	Met all CRs and FRs. This interface is provided by the IPEC with a line side T1 interface and is certified exclusively for voicemail.
2 Wire Analog Ground Start Line (GR-506-CORE)	Yes	Certified	Met all CRs and FRs.
Voicemail			
Interface	**Critical**	**Status**	**Remarks**
Line-Side T1 CAS DTMF (Ground-Start)	No	Certified	Met all CRs and FRs. This interface is provided by the IPEC with a line side T1 interface and is certified exclusively for voicemail.
2 Wire Analog Ground Start Line (GR-506-CORE)	No	Certified	Met all CRs and FRs.

Table 1. SUT Interoperability Summary (continued)

Network Management			
Interface & Signaling	**Critical**	**Status**	**Remarks**
IEEE 802.3 10BaseT Ethernet, TCP/IP	No[7]	Certified	Met all CRs and FRs.
EIA-232 Asynchronous at 9.6 kbps	No[7]	Certified	Met all CRs and FRs.
ITU-T X.25	No[7]	Certified	Met all CRs and FRs.
DSN Features and Capabilities			
Features and Capabilities	**Critical**	**Status**	**Remarks**
Common Features	Yes	Certified	Met all CRs and FRs with the following minor exceptions: The SUT does not provide the correct conference disconnect tone in accordance with the GSCR.[9] CFV of all inter-switch calls do not forward to the DSN.[10] The SUT does not provide a splash ring on an ISDN BRI telephone when the telephone has the CFV feature assigned to the phone.[11]
Attendant	Yes	Certified	Met all CRs and FRs with the following three consoles: Amcom Software Inc. BOSS Version 4.0.5, File Version 4.1.8.2 MSAC Replacement, the Nortel MSL-100 NT4X09 hard console, and the T-Metrics PhoneGroups® Personal Computer-based Console with Software Release 7102081953.
Public Safety	Yes	Certified	Met all CRs and FRs.
Preset Conferencing	Yes	Certified	Met all CRs and FRs.
Nailed-up Connections	Yes	Certified	Met all CRs and FRs.
Precedence Access Threshold	No	Certified	Met all CRs and FRs.
DSN Hotline Services	Yes	Certified	Met all CRs and FRs.
Tandem Switching	Yes	Certified	Met all CRs and FRs.
ISDN Services (EKTS)	No	Not Certified	The SUT does not support MLPP with EKTS. The EKTS option is not authorized nor approved for use in the DSN.
Synchronization	Yes	Certified	Met all CRs and FRs.
Reliability	Yes	Certified	Met all CRs and FRs.
Security	Yes	See note 12.	See note 12.
RSU			
Features and Capabilities	**Critical**	**Status**	**Remarks**
Normal Operation	No	Not Certified	The RSU does not meet the GSCR requirements for certification. The RSU is not authorized nor approved for use in the DSN.
Degraded Operations	No	Not Certified	The SUT did not meet the following critical requirements in the degraded operations condition: MLPP is not supported during emergency standalone; MLPP is only partially met during the partial standalone when the umbilical is saturated. The RSU is not authorized nor approved for use in the DSN.
VoIP			
Features and Capabilities	**Critical**	**Status**	**Remarks**
VoIP Systems	No	Certified	The SUT is certified for VoIP with certified ASVALAN posted on the UC APL. See notes 13 and 14.
Network Gateways			
Gateway	**Interface & Signaling**	**Critical**	**Status**	**Remarks**
PSTN	T1 CAS (DTMF, MFR1, DP)	Yes	Certified	Met all CRs and FRs.
	E1 CAS (DTMF, MFR1, DP)	Yes (Europe only)	Certified	Met all CRs and FRs.
	T1 ISDN PRI NI 1/2 (ANSI T1.607)	Yes	Certified	Met all CRs and FRs.
	E1 ISDN PRI (ITU-T Q.931)	Yes (Europe only)	Certified	Met all CRs and FRs with the following minor exception: The SUT does not meet full requirement for carrier alarms [3]. To meet the MFS and EO European ISDN PRI interface for deployment in Europe, the SUT requires the DSN Option 11C with Software Release 4.5w and Product Enhancement Packages listed in reference (e).

Table 1. SUT Interoperability Summary (continued)

Network Gateways (continued)				
Gateway	**Interface & Signaling**	**Critical**	**Status**	**Remarks**
Tactical	T1 CAS (DTMF, MFR1, DP)	Yes	Certified	Met all CRs and FRs.
	E1 CAS (MFR1)	Yes (Europe only)	Certified	Met all CRs and FRs.
DRSN[15]	2-Wire Analog (GR-506-CORE))	Yes	Certified	Met all CRs and FRs.

NOTES:

1 The SUT does not support the WWNDP in accordance with the GSCR, section 4.5.1. The SUT supports an area code office code format of KYX and KNX (where K=is any digit 2-8, Y=0 or 1, N= any digit 2-9, and X= any digit 0-9). The new WWNDP requires a new format for area code and office code of KXX and KXX (where K= any digit 2-8 and X= any digit 0-9). This discrepancy currently has a minor operational impact in the DSN. Furthermore, the vendor has made a commitment in a formal letter from their Vice President to the DSN PM to develop a software patch to fix this discrepancy by the next software release SE09.1 and back patch it to SE08.

2 The SUT does not retry direct route during failed wink condition or glare condition. The SUT tries the direct route one time then completes the call over the alternate route. Since the call is correctly routed over the alternate route, there is no operational impact.

3 With the DSN 11C included to meet the SUT European ISDN PRI interface there exist a minor discrepancy when either the T1 or E1 interfaces are severed. When either the T1 ISDN PRI or E1 ISDN PRI interfaces are severed the respective carrier alarms are not propagated from one interface to the other. However, when this condition occurs, calls placed over this interface via the DSN 11C receive an appropriate treatment (T120 busy, or Isolated Code Announcement).

4 The SUT does not provide the correct precedence above ROUTINE ring back cadence on an analog phone in accordance with the GSCR. The GSCR requires 30 IMP. The SUT is providing precedence above ROUTINE ring back cadence of 40 IMP. Since the precedence above ROUTINE ring back cadence is distinguished from the ROUTINE ring back cadence, there is no operational impact.

5 When a member of a MLHG is busy and a higher precedence call is placed to the DN of that member (not the MLHG pilot number), the higher precedence call is forwarded to the next idle member of the MLHG. Since the higher precedence call is handled and will divert to an attendant console, night service or alternate DN, there is no operational impact.

6 The SUT does not support MLPP interaction with telephones assigned the MADN option. This option applies to EKTS ISDN BRI telephones, and proprietary "P Phones". The SUT does not support MLPP interaction with these instruments because the assignment of both preemptable and MADN options simultaneously on the same instrument is not permitted. Therefore, the MADN functionality of the SUT is not certified for use within the DSN. This is not a required feature for a MFS. The operational impact is minor.

7 A member of an EKTS cannot be assigned as a member of an MLHG. The SUT does not allow the assignment of an ISDN BRI with options DNH (Directory Number Hunt) and MDN (Multiple Appearance Directory Number). Therefore, the SUT is not certified with the EKTS feature. EKTS is a conditional requirement for an MFS. The operational impact is minor.

8 The Network Management requirements can be satisfied with one of the three following physical interfaces: Ethernet/TCP/IP (IEEE 802.3), Serial EIA-232/Asynchronous, or Serial Synchronous (ITU-T X.25).

9 The SUT does not provide the exact conference disconnect tone in accordance with the GSCR. The tone provided is the same tone provided to commercial customers. The tone currently being provided is distinct and will have no operational impact.

10 When CFV is assigned to a DN on the SUT, it will allow forwarding of all calls to the PSTN not the DSN. There is no operational impact because CFV is a conditional feature for a MFS.

11 The SUT does not provide a splash ring on an ISDN BRI telephone when the telephone has the CFV feature assigned to the phone. This discrepancy has a minor operational impact.

12 Security is tested by DISA-led Information Assurance test teams and published in a separate report.

13 The SUT is certified to support DSN assured services over Internet Protocol with any ASVALAN on the UC APL. The SUT is also certified for joint use with any VALAN on the UC APL. However, since VALANs do not support the Assured Services Requirements detailed in reference (c), C2 users and Special C2 users are not authorized to be served by the SUT connected to a VALAN.

14 An IPv6 capable system or product, as defined in the GSCR, paragraph 1.7, shall be capable of receiving, processing, and forwarding IPv6 packets and/or interfacing with other systems and protocols in a manner similar to that of IPv4. IPv6 capability is currently satisfied by a vendor Letter of Compliance signed by the Vice President of the company. The vendor stated, in writing, compliance to the following criteria by 30 June 2008**:**

a. Conformant with IPv6 standards profile contained in the Department of Defense Information Technology Standards Registry (DISR).
b. Maintaining interoperability in heterogeneous environments and with IPv4.
c. Commitment to upgrade as the IPv6 standard evolves.
d. Availability of contractor/vendor IPv6 technical support.

15 Interoperability certification of the SUT does not constitute DRSN PM approval for connectivity to the DRSN. It is the user's responsibility to request connectivity approval directly from the PM.

Table 1. SUT Interoperability Summary (continued)

LEGEND:

10BaseT	10 Mbps (Baseband Operation, Twisted Pair) Ethernet
802.3	Standard for carrier sense multiple access with collision detection at 10 Mbps
ANSI	American National Standards Institute
APL	Approved Products List
ASVALAN	Assured Services Voice Application Local Area Network
BOSS	Basic Operator Services System
BRI	Basic Rate Interface
C2	Command and Control
CAS	Channel Associated Signaling
CFV	Call Forward Variable
CRs	Capability Requirements
DCE	Data Circuit-Terminating Equipment
DISA	Defense Information Systems Agency
DN	Directory Number
DP	Dial Pulse
DRSN	Defense Red Switch Network
DSN	Defense Switched Network
DSS1	Digital Subscriber Signaling 1
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi-Frequency
E1	European Basic Multiplex Rate (2.048 Mbps)
EIA	Electronic Industries Alliance
EIA-232	Standard for defining the mechanical and electrical characteristics for connecting DTE and DCE data communications devices
EKTS	Electronic Key Telephone System
EO	End Office
FRs	Feature Requirements
GR	Generic Requirement
GR-506-CORE	Telcordia Signaling for Analog Interface Generic Requirement
GSCR	Generic Switching Center Requirements
IEEE	Institute of Electrical and Electronics Engineers, Inc.
IMP	Impulses per minute
IPEC	Intelligent Peripheral Equipment Column
IPv4	Internet Protocol version 4
IPv6	Internet Protocol version 6
ISDN	Integrated Services Digital Network
ITU-T	International Telecommunication Union - Telecommunication Standardization Sector
JITC	Joint Interoperability Test Command
kbps	kilobits per second
MADN	Multiple Appearance Directory Number
Mbps	Megabits per second
MFR1	Multifrequency Recommendation 1
MFS	Multifunction Switch
MLHG	Multiline Hunt Group
MLPP	Multi-Level Precedence and Preemption
MSAC	Meridian Services Attendant Console
MSL	Meridian Switching Load
NI 1/2	National ISDN Standard 1 or 2
PM	Program Manager
PRI	Primary Rate Interface
PSTN	Public Switched Telephone Network
Q.735.3	SS7 Signaling Standard for E1 MLPP
Q.931	Signaling Standard for ISDN
Q.955.3	ISDN Signaling standard for E1 MLPP
RSU	Remote Switching Unit
SE	Succession Enterprise
SMEO	Small End Office
SS7	Signaling System 7
S/T	ISDN BRI four-wire interface
SUT	System Under Test
T1	Digital Transmission Link Level 1 (1.544 Mbps)
T1.607	ISDN – Layer 3 Signaling Specification for Circuit Switched Bearer Service for DSS1
T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
TCP/IP	Transmission Control Protocol/Internet Protocol
U	ISDN BRI two-wire interface
UC	Unified Communications
VALAN	Voice Application Local Area Network
VoIP	Voice over Internet Protocol
WWNDP	Worldwide Numbering and Dialing Plan
X.25	Interface between DTE and DCE for terminals operating in the packet mode and connected to public data networks by dedicated circuit

Table 2. MFS Requirements

Interface	Critical	Requirements Required or Conditional		References
DSN Trunk Interfaces				
T1 SS7 (ANSI T1.619a) E1 SS7 (ITU-T Q.735.3) T1 CAS (MFR1, DTMF, DP) E1 CAS (MFR1, DTMF, DP) T1 ISDN PRI NI 1/2 (ANSI T1.619a) E1 ISDN PRI (ITU-T Q.955.3)	Yes Yes (Europe only) Yes Yes (Europe only) Yes Yes (Europe Only)	Trunking	• Framing (R) • Line Code (R) • Signaling (R) • Alarms (R) • WWNDP (R) • Outpulsing digit formats (R: CAS only) • Routing (R) • Trunk Groups (R) • CAS to CCS trunk interworking (R) • PCM-24/PCM-30 Interoperation (R) • Direct Inward Dialing (R)	• GSCR Section 7 • GSCR Section 7 • GSCR Section 5 • GSCR Section 2.5.7, 7.1.4 & 7.2.2 • GSCR Section 4.5.1 • GSCR Section 4.5.2 • GSCR Section 4.2 • GSCR Section 2.5.5 & 2.5.6 • GSCR Section 3.10 • GSCR Section 7.3 • GSCR Section 2.3.2
		Voice	• MOS (R) • MLPP (R) • Secure calls (R)	• CJCSI 6215.01B • GSCR Section 3 • CJCSI 6215.01B
		Facsimile	• Analog: TIA/EIA-465-A (R)	• DISR
		Data	• Modem (VBD) (R) • 56 kbps switched data (R) • 64 kbps switched data (R: E1, PRI, and SS7) • NX56 synchronous BER (R) • NX64 synchronous BER (R: E1, PRI, and SS7) • Secure data (STE/STU-III) (R)	• CJCSI 6215.01B • GSCR Section 3.10 • GSCR Section 3.10 • GSCR Section 3.10 • GSCR Section 3.10 • CJCSI 6215.01B
		VTC	• ITU-T H.320 (R)	• DISR
DSN Line Interfaces				
2-Wire Analog ISDN BRI NI 1/2 (ANSI T1.619a) Proprietary IEEE 802.3 TCP/IP	Yes Yes No No	Access	• Directory Number Identification (R) • Line signaling (R) • Loop Start Line (R: 2-Wire Analog only) • Analog Ground Start (R) • Alerting Signals and Tones (R) • WWNDP (R) • Call Treatments (R) • 2W user access (R: 2-Wire Analog only) • Analog busy/idle (R: 2-Wire Analog only)	• GSCR Section 2.1.1 • GSCR Section 5.2 • GSCR Section 5.2.1 • GSCR Section 5.2.2 • GSCR Section 5.5 • GSCR Section 4.5 • GSCR Section 4.1 • GSCR Section 4.3.3 • GSCR Section 4.3.4.1
		Voice	• MOS (R) • Announcements (R) • MLPP (R) • Secure Calls (R)	• CJCSI 6215.01B • GSCR Section 3.1.3 • GSCR Section 3.4.3/3.9 • CJCSI 6215.01B
		Facsimile	• Analog: TIA/EIA-465-A (R)	• DISR
		Data	• Modem (VBD) (R: 2W analog only) • 56 kbps switched data (R: BRI only) • 64 kbps switched data (R: BRI only) • NX56 synchronous BER (R: BRI only) • NX64 synchronous BER (R: BRI only) • Secure data (STE/STU-III) (R)	• CJCSI 6215.01B • GSCR Section 3.10 • GSCR Section 3.10 • GSCR Section 3.10 • GSCR Section 3.10 • CJCSI 6215.01B
		VTC	• ITU-T H.320 (R: BRI only)	• DISR
SUT Voice Mail interfaces				
2 Wire Analog (Ground Start) T1 CAS (DTMF) (Ground Start)	No		• FCC Part15/Part 68 (R): Analog only • DTMF outpulsing (C) • DISR compliance as applicable (R) • ROUTINE precedence only in accordance with GSCR, Section 3.3 (R) • TIA/EIA-470-B (R): Analog only	• GSCR A7.5 • GSCR A7.5, 5.4.1, 5.4.2 • GSCR A7.5 • GSCR A7.5.5 • GSCR A7.5.1

Table 2. MFS Requirements (continued)

DSN Features & Capabilities			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
Common Features	Yes	• Selective call rejection (C) • Denied originating service (C) • Code restriction and diversion (R) • Call waiting (C) • Three-way calling (C) • Add-on transfer, conference calling, and call hold (C) • Call forwarding (C) • Call pick-up (C)	• GSCR Section 2.1.2 • GSCR Section 2.1.3 • GSCR Section 2.1.4 • GSCR Section 2.1.5 • GSCR Section 2.1.6 • GSCR Section 2.1.7 • GSCR Section 2.1.8 • GSCR Section 2.1.9
Attendant	Yes	• Initiate all precedence levels (R) • Visual display (R) • Override class of service (R) • Override busy line (R) • Call deflection (R) • Auto recall (R) • Waiting queue (R) • Release to pivot (R: SS7 only)	• GSCR Section 2.2.1 • GSCR Section 2.2.2 • GSCR Section 2.2.3 • GSCR Section 2.2.4 • GSCR Section 2.2.5 • GSCR Section 2.2.6 • GSCR Section 2.2.7 • GSCR Section 2.2.8
Public Safety	Yes	• Basic Emergency Service (911) (C) • Trace of terminating calls (R) • Outgoing call trace (R) • Tandem call trace (R) • Trace of a call in progress (R)	• GSCR Section 2.4.1 • GSCR Section 2.4.2 • GSCR Section 2.4.3 • GSCR Section 2.4.4 • GSCR Section 2.4.5
Preset Conferencing	Yes	• Support 10 bridges; 1 originator and 20 conferees per bridge (R) • Assign up to 20 address numbers per bridge (R) • Use KXX codes for bridge access (R) • Conference notification recorded announcement (R) • Auto retrial and alternate address (R) • Bridge release (R) • Lost connection (R) • Secondary conferencing (R) • Address translation (R)	• GSCR Section 2.6 • GSCR Section 2.6 • GSCR Section 2.6 • GSCR Section 2.6.1 • GSCR Section 2.6.2 • GSCR Section 2.6.3 • GSCR Section 2.6.4 • GSCR Section 2.6.5 • GSCR Section 2.7
Nailed-up Connections	Yes	• Between any two like terminations (R) • PCM-24 and PCM-30, both CAS and CCS (R) • Supervision passed end-to-end for A/D or D/A (R) • Monitored and auto reconfigure (R) • Support at least 10% of circuits as nailed-up (R) • Non-preemptable (R)	• GSCR Section 2.8 • GSCR Section 2.8 • GSCR Section 2.8 • GSCR Section 2.8 • GSCR Section 2.8 • GSCR Section 2.8
PAT	No	• Classmark for/not for PAT screening (C) • 7 PAT mechanisms (C) • Outgoing call screening (C) • Functional structure (C) • Simultaneous calls limitation (C) • Overflow process (C) • Decrementing call-in-progress count (C) • Call treatment (C) • Queuing (C) • Attendant calls (C) • Operation measurement registers (C) • Maintenance and Administration of thresholds (C)	• GSCR Section 2.11.1 • GSCR Section 2.11.1 • GSCR Section 2.11.1.1 • GSCR Section 2.11.1.2 • GSCR Section 2.11.1.3 • GSCR Section 2.11.1.4 • GSCR Section 2.11.1.5 • GSCR Section 2.11.1.6 • GSCR Section 2.11.1.7 • GSCR Section 2.11.1.8 • GSCR Section 2.11.1.9 • GSCR Section 2.11.1.10
DSN Hotline Services	Yes	• Hotline restrictions (R) • Auto initiate (R) • Analog and digital (R) • Subscription basis (R) • Protected hotline calling (R) • WWNDP interoperable (R)	• GSCR Section 2.12 • GSCR Section 2.12 • GSCR Section 2.12 • GSCR Section 2.12 • GSCR Section 2.12.1-4 • GSCR Section 2.12.5

Table 2. MFS Requirements (continued)

DSN Features & Capabilities			
Feature/ Capability	**Critical**	**Requirements Required or Conditional**	**References**
Tandem Switching	Yes	• Tandem Features (R)	• GSCR Section 8 Table 8-1
Network Management	Yes	• Interfaces (R) • Measurements and data generation (R) • Fault management (R) • Configuration management (R) • Accounting management (R) • Performance management (R) • Network Management controls (R) • Remote access (R)	• GSCR Section 9.1 • GSCR Section 9.2 • GSCR Section 9.3 • GSCR Section 9.4 • GSCR Section 9.5 • GSCR Section 9.6 • GSCR Section 9.7 • GSCR Section 9.8
ISDN Services	No	• Electronic Key Telephone Systems (EKTS) (C)	• GSCR Section 10, Table 10-3
Synchronization	Yes	• External line timing mode (R) • Line timing mode (R) • Internal Stratum 3 (R)	• GSCR Section 11.1.1.1 • GSCR Section 11.1.1.2 • GSCR Section 11.1.2.1
Reliability	Yes	• GR-512-CORE (R)	• GSCR Section12
Security	Yes	• GR-815, STIGs, and DIACAP (replacement for DITSCAP) (R)	• GSCR Section 13
RSU			
Normal Operations	No	RSU function is conditional. If an RSU is provided, **all** of the following requirements must be met: • Same user features as EO, SMEO, or PBX • Normal operations in accordance with GR-532-CORE • If EO, provide diverse routing to host and PSTN	 • GSCR Section 2.10.2 • GSCR Section 2.10.2 • GSCR Section 2.10.2
Degraded Operations	No	RSU function is conditional. If an RSU is provided, **all** of the following requirements must be met: • Stand-alone - Stand-alone in accordance with GR-532-CORE - Automated Message Accounting not required - MLPP required • Partial stand-alone operations - Partial in accordance with GR-532-CORE - 3% users provided assured dial tone - Normal MLPP interaction	 • GSCR Section 2.10.3.1 • GSCR Section 2.10.3.2
VoIP			
VoIP System	No	VoIP function is conditional. If VoIP is provided, **all** of the following requirements must be met: • MOS 4.0 or better • ITU-T G.711 PCM Codec • Security • Network Management • Line timing • Internal Clock • Latency ≤ 60 milliseconds • IPv6 capable	 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3 • GSCR Appendix 3, paragraph 1.7

Table 2. MFS Requirements (continued)

Network Gateways				
Gateway	**Critical**	**Requirements Required or Conditional**		**References**
PSTN[1]	Yes	Trunking	• Positive Identification Control (R) • On-Netting (R) • Off-Netting (R)	• CJCSI 6215.01B • CJCSI 6215.01B • CJCSI 6215.01B
Tactical[2]	Yes	Trunking	• Trunk Groups (R) • Call Processing (R)	• GSCR Section 2.5.5 & 2.5.6 • GSCR Section 4
		Voice	• MLPP (R) • Secure calls (R)	• GSCR Section 3 • CJCSI 6215.01B
		Facsimile	• Analog: TIA/EIA-465-A (R)	• DISR
DRSN[3]	Yes	Access	• Alerting Signals and Tones (R) • Call Processing (R) • Call Treatments (R) • Analog busy/idle (R)	• GSCR Section 5.5 • GSCR Section 4.4 • GSCR Section 4.1 • GSCR Section 4.3.4.1
		Voice	• MOS (R) • MLPP (R) • Secure calls (R)	• CJCSI 6215.01B • GSCR Section 3 • CJCSI 6215.01B

NOTES:
1 Voice, facsimile, data, and VTC service requirements for PSTN are identical to DSN with the exception of MLPP.
2 Data and VTC services are not provided via the DSN to tactical (SMU) interface.
3 Facsimile, data, and VTC services are not provided via the DSN to DRSN interface.

LEGEND:

2W	2-Wire	GR-532	LSSGR: Call Processing Features	PCM-30	Pulse Code Modulation - 30 Channels
A/D	Analog to Digital Conversion	GR-815	Generic Requirements For Network Element/Network System (NE/NS) Security	PRI	Primary Rate Interface
ANSI	American National Standards Institute	GSCR	Generic Switching Center Requirements	PSTN	Public Switched Telephone Network
BER	Bit Error Ratio	H.320	Standard for Narrowband VTC	Q.735.3	SS7 Signaling Standard for E1 MLPP
BRI	Basic Rate Interface	IEEE	Institute of Electrical and Electronics Engineers, Inc.	Q.955.3	ISDN Signaling standard for E1 MLPP
C	Conditional	IPv6	Internet Protocol version 6	R	Required
CAS	Channel Associated Signaling	ISDN	Integrated Services Digital Network	RSU	Remote Switching Unit
CCS	Common Channel Signaling	IT	Information Technology	SMEO	Small End Office
CJCS	Chairman of the Joint Chiefs of Staff	ITU-T	International Telecommunication Union - Telecommunication Standardization Sector	SMU	Switch Multiplexer Unit
CJCSI	CJCS Instruction	kbps	kilobits per second	SS7	Signaling System 7
D/A	Digital to Analog Conversion	KXX	K= any number 2-8; X= any number 1-9	STE	Secure Terminal Equipment
DIACAP	DoD Information Assurance Certification and Accreditation Process	LSSGR	Local Access and Transport Area (LATA) Switching Systems Generic Requirements	STIGs	Security Technical Implementation Guides
DISA	Defense Information Systems Agency	Mbps	Megabits per second	STU-III	Secure Telephone Unit - 3rd generation
DISR	DoD IT Standards Registry	MFR1	Multi-Frequency Recommendation 1	T1	Digital Transmission Link Level 1 (1.544 Mbps)
DITSCAP	DoD IT Security Certification and Accreditation Process	MFS	Multifunction Switch	T1.619a	SS7 and ISDN MLPP Signaling Standard for T1
DoD	Department of Defense	MLPP	Multi-Level Precedence and Preemption	TIA	Telecommunications Industry Association
DP	Dial Pulse	MOS	Mean Opinion Score	TIA/EIA-465-A	Group 3 Facsimile Apparatus for Document Transmission
DRSN	Defense Red Switch Network	NI 1/2	National ISDN Standard 1 or 2	TIA/EIA-470-B	Performance and Compatibility Requirements for Telephone Sets with Loop Signaling
DSN	Defense Switched Network	NX56	Data format restricted to multiples of 56 kbps	VBD	Variable bit data
DTMF	Dual Tone Multi-Frequency	NX64	Data format restricted to multiples of 64 kbps	VoIP	Voice over Internet Protocol
E1	European Basic Multiplex Rate (2.048 Mbps)	PAT	Precedence Access Threshold	VTC	Video Teleconferencing
EIA	Electronic Industries Alliance	PBX	Private Branch Exchange	WWNDP	Worldwide Numbering and Dialing Plan
EO	End Office	PCM	Pulse Code Modulation		
FCC	Federal Communications Commision	PCM-24	Pulse Code Modulation - 24 Channels		
G.711	Standard for PCM of Voice Frequencies				
GR	Generic Requirement				
GR-512	LSSGR: Reliability, Section 12				

5. No detailed test report was developed in accordance with the Program Manager's request. JITC distributes interoperability information via the JITC Electronic Report Distribution (ERD) system, which uses Unclassified-But-Sensitive Internet Protocol Router Network (NIPRNet) e-mail. More comprehensive interoperability status information is available via the JITC System Tracking Program (STP). The STP is accessible by .mil/gov users on the NIPRNet at https://stp.fhu.disa.mil. Test reports, lessons learned, and related testing documents and references are on the JITC Joint Interoperability Tool (JIT) at http://jit.fhu.disa.mil (NIPRNet), or http://199.208.204.125 (SIPRNet). Information related to DSN testing is on the Telecom Switched Services Interoperability (TSSI) website at http://jitc.fhu.disa.mil/tssi.

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FOR THE COMMANDER:

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U.S. Joint Forces Command, Net-Centric Integration, Communication, and Capabilities Division, J68
Defense Information Systems Agency, GS23

ADDITIONAL REFERENCES

(c) Chairman of the Joint Chiefs of Staff Instruction (CJCSI) 6215.01B, "Policy for Department of Defense Voice Services," 23 September 2001
(d) Joint Interoperability Test Command (JITC), Memo, "Special Interoperability Test Certification of Nortel Defense Switched Network (DSN) Communications Server (CS) 1000M Cabinet and CS1000M Chassis (including Voice over Internet Protocol [VoIP]) and DSN Option 11C Digital Switching Systems with Software Release 4.5w and Product Enhancement Packages," 7 March 2007
(e) JITC, Memo, JTE, "Special Interoperability Test Certification of Nortel Communication Server (CS) 2100 Digital Switching System with Software Release Succession Enterprise (SE)08 and specified Software Patch Groups," 29 March 2007
(f) Defense Information Systems Agency (DISA), "Defense Switched Network (DSN) Generic Switching Center Requirements (GSCR), Incorporated Change 1," 1 March 2005
(g) Joint Interoperability Test Command, "Defense Switched Network Generic Switch Test Plan (GSTP), Change 1, Revision 1," 1 June 2005
(h) Executive Office of the President, "Transition Planning for Internet Protocol version 6 (IPv6)," 2 August 2005